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## Agriculture Policy Is Health Policy

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*The Farm Bill is meant to supplement and secure farm incomes, ensure a stable food supply, and support the American farm economy. Over time, however, it has evolved into a system that creates substantial health impacts, both directly and indirectly. By generating more profit for food producers and less for family farmers; by effectively subsidizing the production of lower-cost fats, sugars, and oils that intensify the health-destroying obesity epidemic; by amplifying environmentally destructive agricultural practices that impact air, water, and other resources, the Farm Bill influences the health of Americans more than is immediately apparent. In this article, we outline three major public health issues influenced by American farm policy. These are (1) rising obesity; (2) food safety; and (3) environmental health impacts, especially exposure to toxic substances and pesticides.*

**KEYWORDS** Farm Bill, obesity, environment, health

### INTRODUCTION

America is in the grip of a fearsome epidemic. It is an epidemic largely out of the hands of doctors, nurses and scientists—it is the crush of chronic disease, highlighted by the epidemic of overweight and obesity. Rising costs of healthy food and an overall decline in Americans' fitness make this epidemic even more troubling. Efforts by health leaders to improve eating habits and encourage exercise have barely moved the scales. Overwhelmed by the challenge, increasing numbers of Americans find bariatric and “lap band”

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surgery more viable options than improving their diets. Arrayed against their efforts is a far larger force that makes unhealthy foods too tasty, cheap, and abundant to resist.

This megaforce is US farm policy. How does legislation that determines what happens on distant farms affect our bodies and our families? We argue that US farm policy has created a food system that damages our health, our environment, and our national security.

Much of US farm policy is driven by a complex piece of federal legislation passed by Congress every 5 to 7 years called the Farm Bill. Its most recent iterations were the Farm Security and Rural Investment Act of 2002 and the Food, Conservation, and Energy Act of 2008. The Farm Bill is scheduled to be renewed in 2012 and presents a remarkable opportunity to shape our food system and our health for generations to come. What we grow, what we eat, who will profit, the long-term availability of food, and environmental repercussions will all be affected by the provisions of the Farm Bill.

The Farm Bill was envisioned to supplement farm incomes, ensure a stable food supply, and support the American farm economy. Instead, it subsidizes the production of cheap fats, sugars, and oils that fuel obesity; creates profit for food processors and corporate farmers; and supports agricultural practices that damage the environment, with long-term consequences for our health. The upcoming Farm Bill reauthorization requires that those concerned about health and well-being become involved in this issue and demand not only good economic policy but also sound health policy.

In this article, we outline 3 major public health issues influenced by American farm policy. These are (1) rising obesity; (2) food safety; and (3) environmental health impacts, especially exposure to toxics and pesticides.

## FARM POLICY & OBESITY

Two thirds of American adults are overweight and one third are obese.<sup>1</sup> Though the prevalence of obesity remained stable through the 1960s and 1970s, America experienced an increase of more than 50% per decade in the 1980s and 1990s. These trends have significant long-term implications for our health and quality of life. The three leading causes of death in the United States (heart disease, cancer, and stroke) are all associated with poor diet and overweight.

Diabetes—America's 6th leading cause of death—is also dramatically rising. The term *adult-onset* diabetes has become *Type II* diabetes as more young people develop the disease.<sup>2</sup> If obesity trends continue, the lifetime risk of developing diabetes will be 1 in 3 for children born in 2000.<sup>3</sup> There is increasing likelihood that for the first time in American history this generation

of children will live shorter lives than their parents.<sup>4</sup> The young and poor are most affected by rising obesity, but these trends hold for both sexes, all major racial and ethnic categories, geographic regions, and socioeconomic strata.<sup>4</sup>

As Americans loosen their belts, they must also open their pocketbooks, because poor diets create additional costs to society. Not only is poor diet linked to the major causes of death and increased medical spending, but it also carries other costs: overweight persons retire earlier, go into nursing homes at younger ages, have higher absenteeism rates, and are more likely to be disabled.<sup>5</sup> The costs of obesity are borne not just by obese individuals but also by the public who supports their care: half of obesity-related medical costs are borne by public systems funded by taxpayers—Medicare and Medicaid.<sup>6</sup>

Public health professionals have achieved limited success in reversing obesity trends. Their main efforts focus on educating the public about the importance of individual behaviors and by supporting legislation to alter food and physical activity environments, especially in schools. But an unavoidable obstacle to success is the American food supply, which continues to provide an overabundance of cheap fats, oils, and sugars.<sup>7</sup>

Typical supermarkets and convenience stores contain an abundance of cheap, unhealthy food items. If tomorrow every American woke up and refused to consume anything but the foods recommended by the US Department of Agriculture (USDA) Dietary Guidelines for Americans, there would be a catastrophic food shortage. Although the USDA guidelines recommend the consumption of fruits and vegetables as part of a balanced diet, the food system falls drastically short of providing enough fresh fruits and vegetables to meet their recommendations.<sup>7</sup>

The public health community has been slow to examine the link between food policy and public health. Until now, most attempts to reverse the American obesity epidemic have focused on changing consumer behaviors, but the results are depressingly inadequate. Little attention has been focused on examining the “upstream determinants”; namely, the food supply. Just as Americans have failed to ask why there is not enough healthy and affordable food, the public health community has failed to adequately consider what policies are driving the obesity epidemic. By following the pathway of public funds to what and how Americans choose to eat, one finds that American farm and food policies are major vectors of diet-related disease.

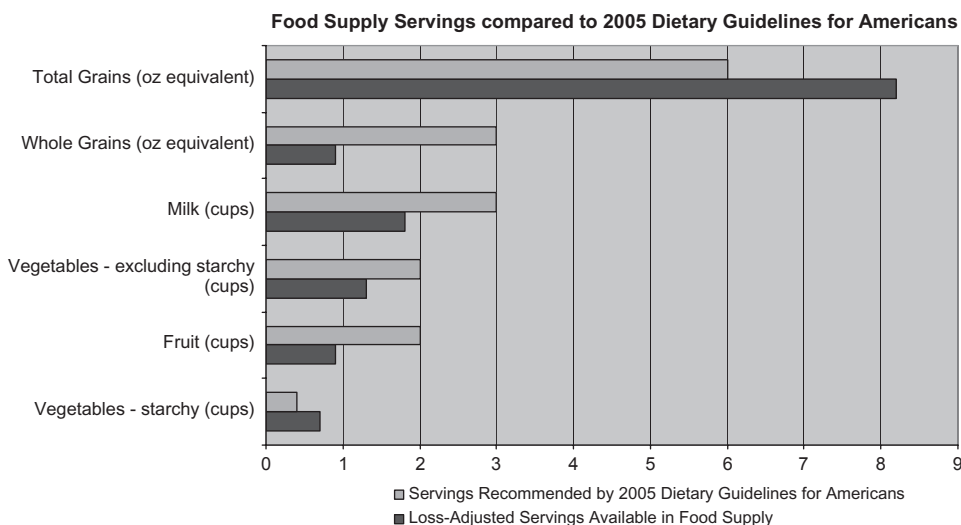
## GOVERNMENT POLICIES AFFECT WHAT CROPS ARE GROWN ON AMERICAN FARMLAND

Fruits and vegetables are good for us. They lower the incidence and mortality of the most common chronic diseases in America.<sup>8</sup> Yet less than 4% of total

US cropland in 2004 was planted with fruits and vegetables.<sup>9</sup> What is happening on the rest of our farmland? These acres are dominated by the 8 main “commodity” crops (corn, wheat, cotton, soybeans, rice, barley, oats, and sorghum). Why is this the case?

Farmers’ crop choices are influenced by a portion of the Farm Bill that rewards certain crops over others. Government agricultural policies extend from the 1930s when federal policy-makers passed laws to create price stability and ensure the long-term economic viability of farming, particularly for family farmers. But in the 1970s, farm policy shifted away from maintaining stable prices to maintaining low prices and maximizing production of certain commodity crops that could be bought and sold on the international market. Direct payments were established to encourage competition and increase production, thereby lowering the price of these commodities.

Farmers rely on government payments for economic stability, so they plant the crops that farm policy encourages them to grow. Seventy to 80% of all farm subsidies are directed toward the 8 commodity crops, which together cover 74% of US cropland. Farmers growing “specialty crops” such as fruits and vegetables are not eligible for direct subsidies and are penalized if they have received federal farm payments for other crops. In addition, large farms, which make up only 7% of the total, receive 45% of all federal payments. Meanwhile, small farms, which are 76% of the total, receive just 14% of the payments.<sup>10</sup> The end result is a government-structured food supply that heavily favors just a few crops, grown by large-scale farming operations that fail to satisfy the healthy dietary needs of Americans (Figure 1).<sup>11</sup>

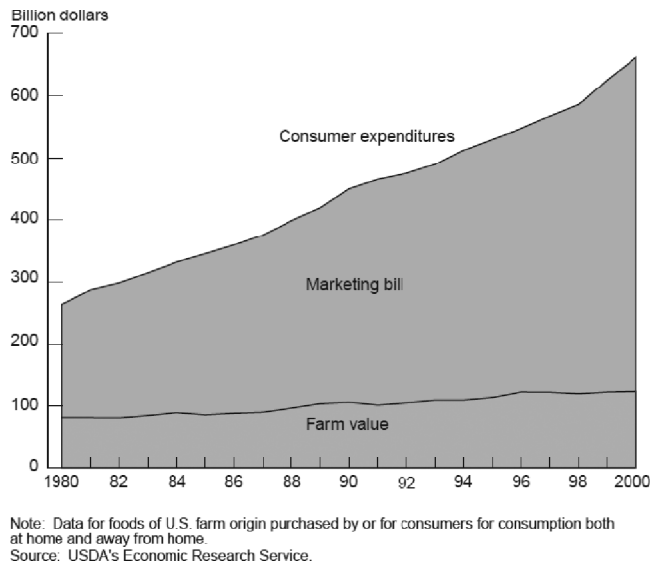


**FIGURE 1** The American food supply contains too many fats and sugars and not enough fruits and vegetables.<sup>11</sup>

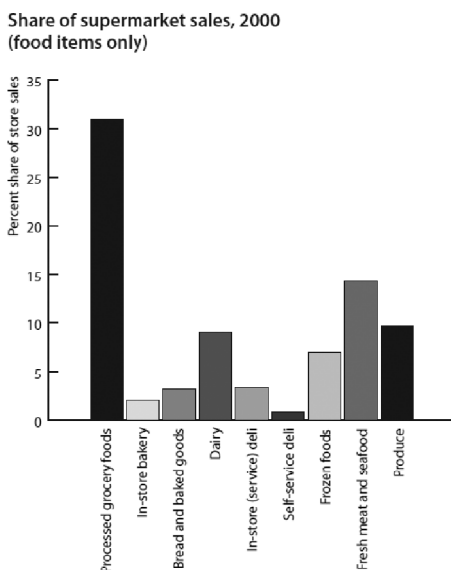
Certain subsidies provide a critical safety net to family farmers, but food processors are among those who gain the most from government payments. Processors have profited from the conversion of these subsidized commodities into processed foods sold at ever higher prices despite lower nutritional content. Between 1980 and 2000, consumer food expenditures in the United States increased two and a half times to \$661 billion, while the farm value of these foods increased only one and a half times. During this period, the proportion of each food dollar that went to farmers dropped from 31% to 19%, meaning that 81 cents of each dollar spent on food in 2000 went to non-farm-related activities, including labor, packaging, transportation, and marketing (Figure 2).<sup>12</sup> Our food system provides greater rewards to those who process, market, and distribute food than to those who actually grow it.

Food processors, with proportionally more of their funds available for marketing, have been successful at creating new foods with desirable characteristics: low cost, convenience, high energy density, and appealing taste (via added fats, sugars, salt, and artificial flavoring).<sup>13</sup> With the additional support of government-sponsored product and processing research at land grant universities, these innovations use cheap agricultural inputs to make tastier and longer lasting foods with higher profit margins. Processed grocery foods dominate supermarket sales (Figure 3), and simultaneously the consumption of added fats and sugars has increased (Figure 4).

Americans are eating more food, most of which is unhealthy. Between 1970 and 2000 the average consumption per person of added fats increased

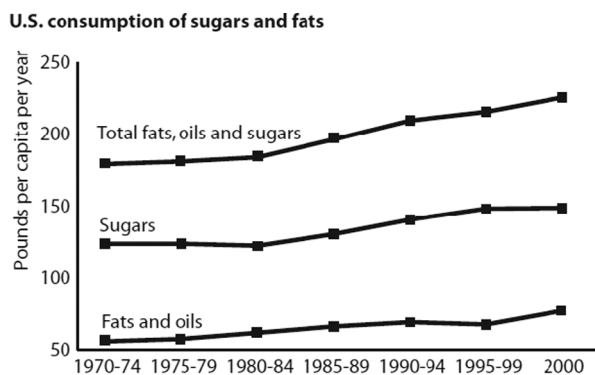


**FIGURE 2** From 1980 to 2000, food marketing costs increased 57% and farm value increased 16%.<sup>12</sup>



Source: USDA ERS, *The U.S. Food Marketing System 2002*.

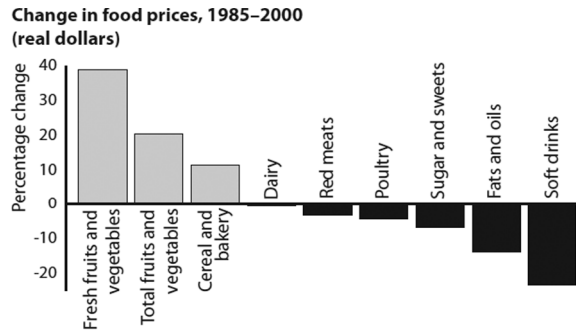
**FIGURE 3** Processed grocery food sales compose the majority of supermarket sales, 2000.<sup>14</sup>



Source: USDA ERS, *Food Review*, Vol. 25, Issue 3

**FIGURE 4** Consumption of fats, oils, and sugars has increased from 1970 to 2000.<sup>14</sup>

38% and average consumption of added sugars increased 20% (Figure 5). Researchers estimate that if we acted rationally and in our best interest, the average person over age 4 would consume about 2350 calories each day.<sup>15</sup> Yet our food supply makes available 3800 calories per person each day. The price of fresh fruits and vegetables increased 118% from 1985 to 2000, and the price of fats and oils increased only 35%. Consumers are price sensitive, such that even small changes in the price of healthy foods affect their consumption.<sup>7</sup>

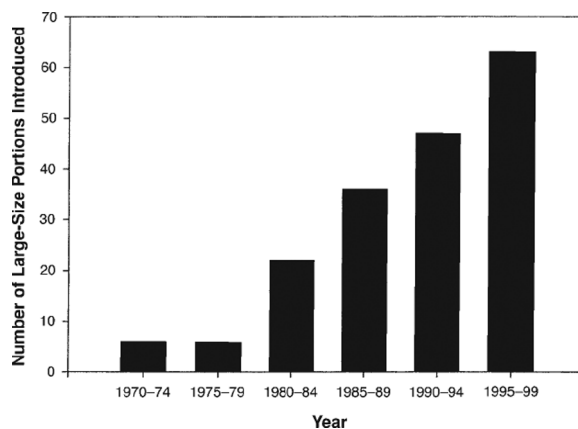


Source: USDA ERS FoodReview, Vol. 25, Issue 3. Converted to real dollars.

**FIGURE 5** The real cost of fruits and vegetables has increased and the real cost of fats, oils, and soda has decreased.<sup>7</sup>

Not surprisingly, when ingredients are cheap, producers also compete by increasing portion sizes (Figure 6).<sup>20</sup> The cost of the food itself is small relative to the price of preparing, packaging, shipping, and advertising, so the cost of increasing portion size is small relative to the perceived value of larger sizes. Cheap food inputs make it possible for food retailers to double the calories in an item while selling it for only cents more. This profitable strategy offers consumers short-term bargains but staggering long-term costs.<sup>16</sup> While \$21 billion dollars were spent under the Farm Bill to support commodity crop production in 2005,<sup>17</sup> Americans are spending \$147 billion a year on obesity-related illnesses, not to mention the costs of time, productivity, and quality of life lost.<sup>18</sup>

Agricultural policy subsidies come at a cost to public health. The system provides all consumers with excess fats and sugars, but especially vulnerable are children and the poor. Lifetime dietary patterns—healthful or not—are generally set early in life. Unhealthful patterns are important; obese children are likely to remain obese into adulthood.<sup>20,21</sup> Poor families who live in



**FIGURE 6** Overall calorie intake has increased with portion size.<sup>20</sup>



low-income communities often find themselves living in food deserts, where healthy food options are unavailable but fast food abounds. Many older citizens who live on fixed incomes must choose between medicine and vegetables. Freedom of choice for consumers is desirable, yet we have a food system that increasingly limits healthy choices for large segments of the population, making unhealthy eating the default option.

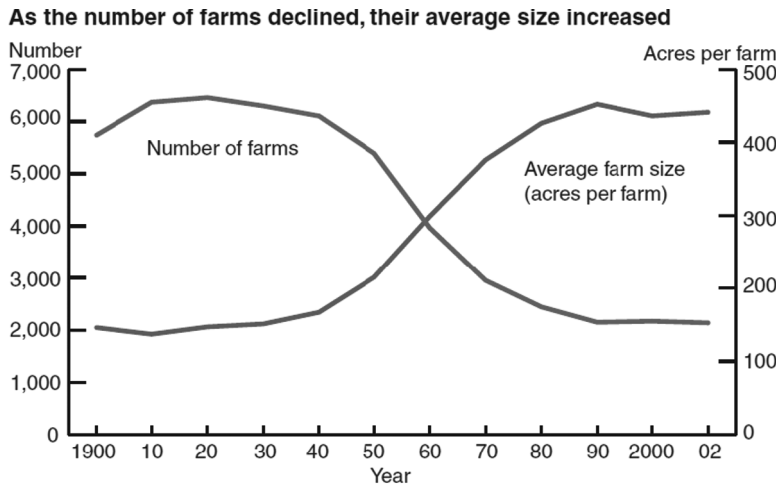
## FARM POLICY & FOOD SAFETY

Foodborne pathogens cause approximately 76 million illnesses, 325,000 hospitalizations, and 5000 deaths in the United States each year.<sup>22</sup> This too is related to the Farm Bill. Current US farm policies encourage a system that is both highly centralized and relies on large amounts of imported foods. American food travels through several stages and many miles as it journeys from farm to table—each link presents an opportunity for food contamination. Poorly monitored food imports, the threat of agro-terrorism, and our system of highly centralized food production put the safety of our food system at risk.<sup>23,24</sup>

Though foodborne pathogens most often affect raw foods of animal origin, the 2006 *Escherichia coli* spinach outbreak demonstrates the vulnerability of our entire food system to contamination. Despite comprehensive food safety regulations and consistent food sanitation surveillance nationwide, a batch of contaminated fresh spinach from a single farm in Monterey County, California, infected 205 persons across at least 26 states in a 2-month period.<sup>25</sup> This outbreak resulted in 102 hospitalizations and 3 deaths. How does contaminated spinach from one farm infect people all over the country?

Spinach from California travels the country as a result of the large-scale centralized production and distribution of our food. When American farm policy changed in the 1970s to encourage low prices and competition between farmers, many went out of business. The farmers who survived were the ones who successfully increased their overall size and their investment in technology. Since 1900, the number of farms has fallen 63% and the size of farms has increased 67% (Figure 7).<sup>26</sup>

To reduce costs, large-scale farmers typically use highly centralized and mechanized production practices, including confined animal feedlot operations (CAFOs) and monocultures. Though these methods are efficient, they create conditions that put plants and animals at risk of disease and microbial contamination and harm the environment. Monoculture techniques increase the risk of crop disease and deplete nutrients in soil, requiring the use of artificial fertilizers which evaporate, descend as acid rain, contaminate the water supply, and contribute to global warming.<sup>27</sup> To promote rapid growth, cattle are frequently fattened with large quantities of grains that change the acidity of their digestive systems making them more vulnerable



**FIGURE 7** The number of farms has declined and the average size of farms has increased.<sup>26</sup>

to pathogenic strains of *E. coli*.<sup>28</sup> Increased shedding of such pathogens in animal waste occurs with the decline in the state of an animal's health and an increase in its stress levels,<sup>29</sup> both of which are exacerbated in CAFOs.<sup>31</sup> Inadequate manure treatment, contamination of nearby fields and water, and contamination of slaughtered livestock are a frequently suspected sources of contaminated foods.<sup>29,31</sup> To maintain the animals' health, many producers dose the animals with antibiotics,<sup>32</sup> a practice that poses its own set of problems (see next section).

Centralization also creates large distribution channels through which contaminated foods may easily spread without aggressive vigilance. Though centralization may make detection of contaminated foods easier, potentially more individuals are at risk if contamination goes undetected. The consequences of a breach in food safety are much greater in this type of system. This is illustrated by the recent salmonella-tainted peanut butter scare, which sickened hundreds of people, caused several deaths, and put the Peanut Corporation of America out of business. Smaller, more isolated food systems are inherently less vulnerable to large-scale contamination.<sup>33</sup> A highly centralized structure also increases the risks of harm from deliberate attacks. Biological agents introduced undetected into the system could result in a major disruption of our food supply. Additionally, high-speed, automated methods of slaughtering and food processing may make contamination both more likely and more difficult to detect.<sup>34,35</sup>

New threats to food safety have also arisen from global food trade. In 2007, Food and Drug Administration officials advised consumers to discard toothpaste manufactured in China after discovering it contained ethylene

glycol, a chemical agent used in antifreeze.<sup>36</sup> In China, the toxic ingredient melamine found its way into milk, infant formula, and pet food, sickening 294,000 children and causing at least 6 deaths.<sup>37</sup> Ingredients are entering the United States from more than 100 countries with the dollar value doubling over the past decade to \$80 billion in 2006. Once these ingredients are incorporated into processed foods, it is difficult and often impossible to trace them back to their source.<sup>38</sup> As American food policies encourage the production of few crops and rely heavily on global imports for the rest, more cases of contamination are likely without aggressive policing and controls.

## FARM POLICY & ENVIRONMENTAL HEALTH

Farm policies encouraging mass production have resulted in highly centralized farm practices that are more likely to result in environmental degradation. For example, fossil fuels are used to manufacture and transport fertilizer and pesticides over long distances; the raw and then finished products are then further transported, often back to their original locations; source water is also transported for agriculture use; and used water is commonly contaminated by chemical fertilizers and pesticides with resulting downstream “dead zones.” Ground and surface waters can also be polluted by antibiotics from CAFOs and by antibiotic-resistant bacteria, and soil is depleted through overuse and lack of crop rotation.

CAFOs generate enormous amounts of waste and air pollution, and they are perhaps the most egregious example of environmental degradation exacerbated by US farm policies. The savings to large livestock producers feeding their animals cheap subsidized grains have driven down the price of meats, resulting in consolidation of livestock operations. Diversified farmers, using their own farm products and labor to raise livestock, are unable to compete with concentrated livestock industries that benefit from cheap inputs and economies of scale without regard to resulting environmental damage.

CAFOs lack sewage treatment plants, yet, because a pig produces about 4 times as much solid waste as a human, a typical CAFO of 5000 swine produces waste equivalent to a city of 20,000 people.<sup>39</sup> This waste is expensive to transport, store, and dispose. Storage pits for livestock or poultry manure can leak into groundwater and streams; such pits become even more problematic if sited in a flood plain or below the water table. CAFOs generally produce more waste than can be used on nearby fields as fertilizer.<sup>39</sup> Levels of phosphorus and nitrogen in the waste often exceed what the crops can utilize or the soil can retain. Correspondingly, excess nutrients contaminate surface waters and streams, causing algal overgrowth in nearby water bodies that devastate underwater ecological systems. Many feed ingredients used in CAFOs pass directly through the animal into manure,

including carcinogenic heavy metals (such as arsenic), antibiotics, nitrogen, and phosphorus. The manure also contains dust, mold, pathogenic bacteria, and bacterial endotoxins that contaminate air and water. Generally accepted livestock waste management practices do not adequately or effectively protect water resources from contamination with excessive nutrients, microbial pathogens, and pharmaceuticals present in the waste.<sup>40</sup>

Additionally, toxic gases, vapors, and particles are emitted from CAFOs into the environment, including ammonia, hydrogen sulfide, carbon dioxide, malodorous vapors, and particles contaminated with a wide range of microorganisms.<sup>41</sup> The negative impact of CAFOs on nearby communities is a frequently voiced concern and is being increasingly documented.

Finally, CAFOs contribute to the health threat of antibiotic resistance. Because large numbers of animals are kept in crowded conditions, microbes spread easily. Though physicians receive negative attention for contributing to antibiotic resistance by overprescribing antibiotics, antibiotics used to produce livestock account for the largest portion of antibiotic usage in the United States—between 60% and 80% of total nontherapeutic antimicrobials produced in the United States are used in US livestock operations.<sup>42</sup>

The World Health Organization (WHO) recently called for phasing out the use of antimicrobial growth stimulants for livestock and fish production.<sup>43</sup> WHO recommended that therapeutic antimicrobial agents be available only by prescription for human and veterinary use. Additionally, concern about the risk of an influenza pandemic led WHO to recommend that regulations be promulgated to restrict the colocation of swine and poultry CAFOs on the same site and to set substantial separation distances.

Aware that CAFOs present significant environmental and health risks, legislators have addressed them in recent Farm Bills. But rather than discouraging their practices, the Farm Bill directed hundreds of millions of dollars to CAFOs through the conservation title and rejected amendments, such as the Farm Ranch Equity Stewardship and Health (FRESH) Act, that would increase support for farmer's using environmentally friendly practices. Under the Environmental Quality Incentives Program, CAFOs are eligible for up to \$450,000 (75% of operating costs) to build storage facilities for animal sewage.<sup>44</sup> Though 3 out of 4 farmers interested in Farm Bill conservation programs are rejected for lack of funds, it is antithetical to the protection of the environment and health to provide funds that enable the current operation of CAFOs rather than providing incentives for them to shift toward sustainable practices.<sup>45</sup>

The price of food to consumers does not contain the true costs of its production. The true costs include the cost of environmental cleanup, the costs to human health of toxic exposure and a lack of clean water sources, the costs of overusing fossil fuels, as well as the cost to future generations of growing food with the loss of severely depleted agricultural land.

## ENVISIONING A HEALTHY FOOD SYSTEM

Our current farm policy is contrary to our nutritional, environmental, and economic needs. Agricultural policy should not undermine the public's health, especially our children's health. Nor should it promote or allow continued degradation of our natural environment. A healthy food system should ensure the well-being of consumers and of farmers, in addition to the producers, processors, and distributors upon whom they depend. Organic and regional food production are promising examples of change.

## RECOMMENDATIONS: HOW CAN PUBLIC HEALTH PROFESSIONALS TAKE ACTION?

Unhealthy people in unhealthy places cannot produce healthy food. The health community has the responsibility to assure the conditions in which people can be healthy. This means getting involved with agricultural policy to influence a better food supply.

### Recommendations for Personal Action

- Direct policy-makers' and the public's focus on the taxpayer-supported food system; become a vocal participant in efforts to reform the Farm Bill by writing stories, editorials, and arranging visits with policy-makers.
- Advocate more effectively for sustainable food policies, in part by providing testimony at local, state, and congressional hearings related to these issues.
- Model "food literate" behavior by purchasing sustainably grown foods.
- Communicate the expense of our current food system in terms of taxes, ill health, and environmental costs.
- Promote further research on health issues stemming from our current food system, including health impact assessments and cost-benefit analyses.
- Develop case studies to identify sustainable, successful food systems.
- Support efforts to maintain strong organic certification qualifications.
- Support the labeling of dairy and meat products grown without antibiotics, growth hormones, endocrine disruptors, and other agents of concern.

### Recommendations for Institutional Action

- Promote the consumption of locally grown, humane, and sustainably produced, healthy foods at schools and health care institutions.
- Establish comprehensive food policies on health care premises, as done at Kaiser Permanente, to promote healthy food choices in inpatient food

services, cafeterias, vending machines, food carts, and catered meals; and to support agricultural practices that are ecologically sound, culturally appropriate, and socially responsible.

- Provide informational material on the steps an individual can take to buy and use sustainably grown food along with other preventive health literature in waiting rooms or on the Internet.
- Learn from the success of organizational and governmental policies that limited contracts to facilities that were nonsmoking and disability accessible. We suggest that all health and professional organizations try to utilize sustainably produced foods at their meetings and lodging facilities.

### Recommendations for State Agriculture Departments

- Create a multidisciplinary leadership team to lead discussions about creating sustainable food systems and instituting incentives to develop them.
- Advocate for a “regional food system report card” and require that this information be made available to the public.
- Develop a life cycle approach with “all cost accounting” to agricultural decisions. Add environmental and health perspectives into all major reports and programming.
- Make explicit and public all input in agricultural decisions, including participation from lobbyists.

### Recommendations for Policy & Regulatory Action

- Make increasing the affordability and quality of nutritious foods the goal of farm policy.
- Revise the current Farm Bill subsidy structure to equally support naturally grown specialty crops and cap farm payments to large operations to support family farms.
- Focus federal research on various types of production systems that incorporate sustainable and healthful agricultural production.
- Increase federal research on structural interventions that reduce the health impact of current food production systems and increase access to healthy calories. Good models are “edible schoolyards,” community-supported agriculture, and farmers’ markets.
- Support research into the health effects of agricultural production, including antibiotic resistance, pesticides, toxins, hormones, corn sweeteners, grain-fed livestock, and the true costs of “traveled” foods.
- Evaluate the costs and benefits of changes to the food system on health care costs related to chronic disease.

- Allow school food programs to tailor meals to the nutritional needs of their students.
- Support human body burden biomonitoring of antibiotics and food toxicants.
- Support transparency in food production.
- Ensure access to information or reports by communities and governments regarding use of agricultural inputs such as pesticides (as required in California), antibiotics, and fertilizers.
- Ensure access to information or reports on off-migration of pollutants, antibiotics, resistant organisms, and air and water pollutants from CAFOs.
- Eliminate or revise regulations that prevent small-scale livestock operations.
- Consider the benefits of supporting small farmers, including job growth and environmental stewardship benefits.

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